

Figure 1A

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Nucleic Acid sequence human histamine H3 receptor (full sequence including untranslated regions) [SEQ.ID.NO.:5]

CCACGCGTCCGCCGGCTGCACGGTCGCACCGGCAGCGGCTCAGGCTCCGG  
CTCCTCTCCCCTGCAGCAGCCGCGCTGCCGGCCCCACTGGGCTCGGATC  
CGGCCCCGGCCCCCTCGGCACCGCCTGCTCTGGCCCCGGCCCCGGCCCCG  
CGGACCATGCGCTGGGCGCCCCCAGGGGAAACCCGACCCGGCCAAGGGCC  
CGAAAGACGAGGCTCCCGGGCCGGGGCCCCCTCCCGGCCGCCAGCTCTC  
GGCCGGCGCCCTGCCCGCGTCCCGGAGCCGCGTGAGCCTGCGGGGCCAT  
GGAGCGCGCGCCGCCGACGGGCGCTGAACGCTTCGGGGGCGCTGGCGG  
GCGATGCGGCGGCGGGCGGGGCGCGCGGCTTCTCGGCAGCCTGGACC  
GCGGTGCTGGCCGCGCTCATGGCGCTGCTCATCGTGGCCACGGTGCTGGG  
CAACGCGCTGGTCATGCTCGCCTTCGTGGCCGACTCGAGCCTCCGCACCC  
AGAACAACCTCTTCCTGCTCAACCTCGCCATCTCCGACTTCCTCGTCGGC  
GCCTTCTGCATCCCACTGTATGTACCCTACGTGCTGACAGGCCGCTGGAC  
CTTCGGCCGGGGCCTCTGCAAGCTGTGGCTGGTAGTGGAACCTGCTGT  
GCACCTCCTCTGCCTTCAACATCGTGCTCATCAGCTACGACCGCTTCCTG  
TCGGTCACCCGAGCGGTCTCATACCGGGCCAGCAGGGTGACACGCGGCG  
GGCAGTGCGGAAGATGCTGCTGGTGTGGGTGCTGGCCTTCCTGCTGTACG  
GACCAGCCATCCTGAGCTGGGAGTACCTGTCCGGGGGCAGCTCCATCCCC  
GAGGGCCACTGCTATGCCGAGTTCTTCTACAACCTGGTACTTCCTCATCAC  
GGCTTCCACCCTGGAGTTCTTTACGCCCTTCCTCAGCGTCACCTTCTTA  
ACCTCAGCATCTACCTGAACATCCAGAGGCGCACCCGCTCCGGCTGGAT  
GGGGCTCGAGAGGCAGCCGGCCCCGAGCCCCCTCCCGAGGCCAGCCCTC  
ACCACCCCCACCGCTGGCTGCTGGGGCTGCTGGCAGAAGGGGGCACGGGG  
AGGCCATGCCGCTGCACAGGTATGGGGTGGGTGAGGCGGCCGTAGGCGCT  
GAGGCCGGGGAGGCGACCCTCGGGGGTGGCGGTGGGGGCGGCTCCGTGGC  
TTCACCCACCTCCAGCTCCGGCAGCTCCTCGAGGGGCACTGAGAGGCCGC  
GCTCACTCAAGAGGGGCTCCAAGCCGTCGGCGTCCTCGGCCTCGCTGGAG  
AAGCGCATGAAGATGGTGTCCCAGAGCTTACCCAGCGCTTTCGGCTGTC  
TCGGGACAGGAAAGTGCCAAAGTCGCTGGCCGTCATCGTGAGCATCTTTG  
GGCTCTGCTGGGCCCCATACAGCTGCTGATGATCATCCGGGCCGCTGC  
CATGGCCACTGCGTCCCTGACTACTGGTACGAAACCTCCTTCTGGCTCCT  
GTGGGCCAACTCGGCTGTCAACCTGTCCTCTACCCTCTGTGCCACCACA  
GCTTCGGCCGGGCCCTTACCAAGCTGCTCTGCCCCAGAAGCTCAAAATC  
CAGCCCCACAGCTCCCTGGAGCACTGCTGGAAGTGAGTGGCCCACCAGAG  
CCTCCCTCAGCCACGCCTCTCTCAGCCCAGGTCTCCTGGGCATCTGGCCC  
TGCTGCCCCCTACCCGGCTCGTTCCCCCAGGGGTGAGCCCCGCGGTGTCT

**Figure 1B**

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GTGGCCCTCTCTTAATGCCACGGCAGCCACCCTGCCATGGAGGCGCCTTC  
CTGGGTGGCCAGAGGGCCCCCTCACTGGCTGGACTGGAGGCTGGGTGGCC  
GGCCCTGCCCCCACATTCTGGCTCCACCGGGGAGGGACAGTCTGGAGGT  
CCCAGACATGCTGCCACCCCCTGCTGGTGCCACCCTTCGCAGTTACTG  
GTTGGTGTTCTTCCCAAAGCAAGCACCTGGGTGTGCTCCAGGCTTCCTGC  
CCTAGCAGTTTGCCTCTGCACGTGCACACACCTGCACACCCCTGCACACA  
CCTGCACACCGTCCCTCTCCCCGGACAAGCCCAGGACACTGCCTTTGCTG  
CCTTCTGTCTCTTGATAAGCCTCAGGCCTGGCCCTTTCACCCCTCTTCC  
CACCAACTCTCTCTGCCCCAAAAGTGTCAAGGGGCCCTAGGAACCTCGA  
AGCTGTTCTCTGCTTTTCCATTCTGGGTGTTTTTCAGAAAGATGAAGAAGA  
AAACATGTCTGTGAACTTGATGTTTCGTGGGATGTTTAATCAAGAGAGACA  
AAATTGCTGAGGAGCTCAGGGCTGGATTGGCAGGTGTGGGCTCCACGCC  
CTCCTCCCTCCGCTAAGGCTTCCGGCTGAGCTGTGCCAGCTGCTTCTGCC  
CACCCCGCCTCTGGGCTCACACCAGCCCTGGTGGCCAAGCCTGCCCCGGC  
CACTCTGTTTGCTCACCCAGGACCTCTGGGGGTTGTTGGGAGGAGGGGGC  
CCGGCTGGGCCCCGAGGGTCCCAAGGCGTGCAGGGGCGGTCCAGAGGAGGT  
GCCCCGGCAGGGGCCGCTTCGCCATGTGCTGTGCACCCGTGCCACGCGCT  
CTGCATGCTCCTCTGCCTGTGCCCGCTGCGCTGCCCTGCAAACCGTGAGG  
TCACAATAAAGTGTATTTTTTTAAAAAAAAAAAAAAAAAAAAAAAAAAAAA

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Figure 2

Nucleic acid sequence human histamine H3 receptor (coding region) [SEQ ID NO:6]

ATGGAGCGCGCGCCGCCCCGACGGGCGCTGAACGCTTCGGGGGCGCTGGCGGGCGATGC  
GGCGGGCGGGCGGGGCGCGGGCTTCTCGGCAGCCTGGACCGCGGTGCTGGCCGCGCT  
CATGGCGCTGCTCATCGTGGCCACGGTGCTGGGCAACGCGCTGGTCATGCTCGCCTTCGTG  
GCCGACTCGAGCCTCCGCACCCAGAACAACTTCTTCCTGCTCAACCTCGCCATCTCCGACT  
TCCTCGTCGGCGCCTTCTGCATCCCACTGTATGTACCCTACGTGCTGACAGGCCGCTGGAC  
CTTCGGCCGGGGCCTCTGCAAGCTGTGGCTGGTAGTGGACTACCTGCTGTGCACCTCCTCT  
GCCTTCAACATCGTGCTCATCAGCTACGACCGCTTCCTGTCGGTCACCCGAGCGGTCTCAT  
ACCGGGCCAGCAGGGTGACACGCGGGCGGGCAGTGCGGAAGATGCTGCTGGTGTGGGTG  
CTGGCCTTCCTGCTGTACGGACCAGCCATCCTGAGCTGGGAGTACCTGTCCGGGGGAGCT  
CCATCCCCGAGGGCCACTGCTATGCCGAGTTCTTCTACAACTGGTACTTCCTCATCACGGC  
TTCCACCCTGGAGTTCTTTACGCCCTTCCTCAGCGTCACCTTCTTTAACCTCAGCATCTACC  
TGAACATCCAGAGGGCGCACCCGCTCCGGCTGGATGGGGCTCGAGAGGCAGCCGGCCCCG  
AGCCCCCTCCCGAGGGCCAGCCCTCACCACCCACCGCCTGGCTGCTGGGGCTGCTGGC  
AGAAGGGGCACGGGGAGGCCATGCCGCTGCACAGGTATGGGGTGGGTGAGGCGGCCGTA  
GGCGCTGAGGCCGGGGAGGCGACCCCTCGGGGGTGGCGGTGGGGGCGGCTCCGTGGCTTC  
ACCCACCTCCAGCTCCGGCAGCTCCTCGAGGGGCACTGAGAGGCCGCGCTCACTCAAGAG  
GGGCTCCAAGCCGTCGGCGTCCTCGGCCTCGCTGGAGAAGCGCATGAAGATGGTGTCCCA  
GAGCTTCACCCAGCGCTTTCGGCTGTCTCGGGACAGGAAAGTGGCCAAGTCGCTGGCCGT  
CATCGTGAGCATCTTTGGGCTCTGCTGGGCCCCATACACGCTGCTGATGATCATCCGGGCC  
GCCTGCCATGGCCACTGCGTCCCTGACTACTGGTACGAAACCTCCTTCTGGCTCCTGTGGG  
CCAACTCGGCTGTCAACCCTGTCCTCTACCCTCTGTGCCACCACAGCTTCCGCCGGGCCTT  
CACCAAGCTGCTCTGCCCCAGAAGCTCAAAATCCAGCCCCACAGCTCCCTGGAGCACTG  
CTGGAAG

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Figure 3

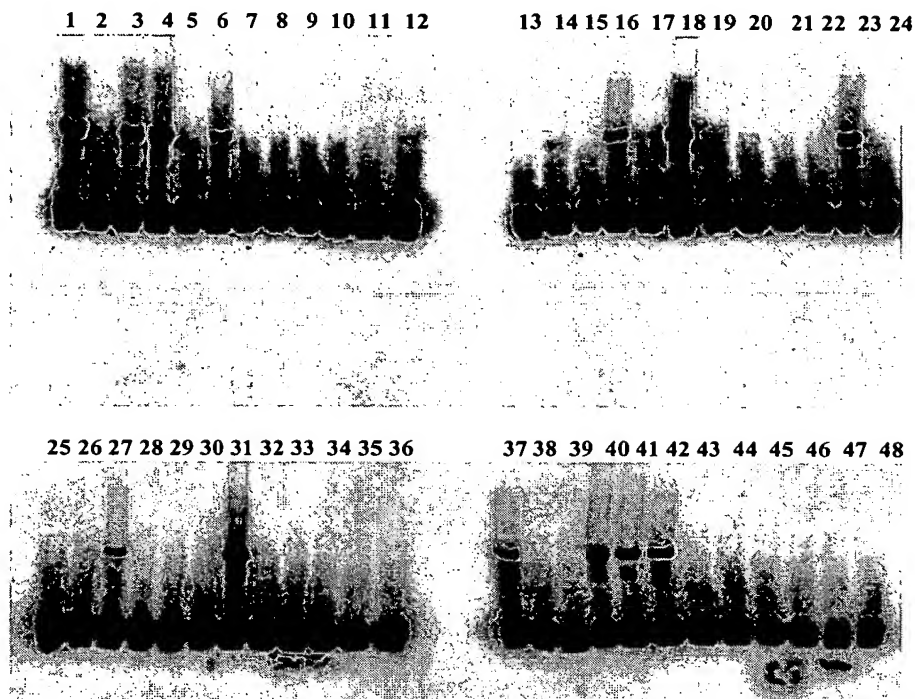
Amino acid sequence human histamine H3 receptor [SEQ.ID.NO.:7]

Met Glu Arg Ala Pro Pro Asp Gly Pro Leu Asn Ala Ser Gly Ala Leu Ala Gly  
Asp Ala Ala Ala Ala Gly Gly Ala Arg Gly Phe Ser Ala Ala Trp Thr Ala Val  
Leu Ala Ala Leu Met Ala Leu Leu Ile Val Ala Thr Val Leu Gly Asn Ala Leu  
Val Met Leu Ala Phe Val Ala Asp Ser Ser Leu Arg Thr Gln Asn Asn Phe Phe  
Leu Leu Asn Leu Ala Ile Ser Asp Phe Leu Val Gly Ala Phe Cys Ile Pro Leu  
Tyr Val Pro Tyr Val Leu Thr Gly Arg Trp Thr Phe Gly Arg Gly Leu Cys Lys  
Leu Trp Leu Val Val Asp Tyr Leu Leu Cys Thr Ser Ser Ala Phe Asn Ile Val  
Leu Ile Ser Tyr Asp Arg Phe Leu Ser Val Thr Arg Ala Val Ser Tyr Arg Ala  
Gln Gln Gly Asp Thr Arg Arg Ala Val Arg Lys Met Leu Leu Val Trp Val Leu  
Ala Phe Leu Leu Tyr Gly Pro Ala Ile Leu Ser Trp Glu Tyr Leu Ser Gly Gly  
Ser Ser Ile Pro Glu Gly His Cys Tyr Ala Glu Phe Phe Tyr Asn Trp Tyr Phe  
Leu Ile Thr Ala Ser Thr Leu Glu Phe Phe Thr Pro Phe Leu Ser Val Thr Phe  
Phe Asn Leu Ser Ile Tyr Leu Asn Ile Gln Arg Arg Thr Arg Leu Arg Leu Asp  
Gly Ala Arg Glu Ala Ala Gly Pro Glu Pro Pro Pro Glu Ala Gln Pro Ser Pro  
Pro Pro Pro Gly Cys Trp Gly Cys Trp Gln Lys Gly His Gly Glu Ala Met  
Pro Leu His Arg Tyr Gly Val Gly Glu Ala Ala Val Gly Ala Glu Ala Gly Glu  
Ala Thr Leu Gly Gly Gly Gly Gly Gly Gly Ser Val Ala Ser Pro Thr Ser Ser  
Ser Gly Ser Ser Ser Arg Gly Thr Glu Arg Pro Arg Ser Leu Lys Arg Gly Ser  
Lys Pro Ser Ala Ser Ser Ala Ser Leu Glu Lys Arg Met Lys Met Val Ser Gln  
Ser Phe Thr Gln Arg Phe Arg Leu Ser Arg Asp Arg Lys Val Ala Lys Ser Leu  
Ala Val Ile Val Ser Ile Phe Gly Leu Cys Trp Ala Pro Tyr Thr Leu Leu Met  
Ile Ile Arg Ala Ala Cys His Gly His Cys Val Pro Asp Tyr Trp Tyr Glu Thr  
Ser Phe Trp Leu Leu Trp Ala Asn Ser Ala Val Asn Pro Val Leu Tyr Pro Leu  
Cys His His Ser Phe Arg Arg Ala Phe Thr Lys Leu Leu Cys Pro Gln Lys Leu  
Lys Ile Gln Pro His Ser Ser Leu Glu His Cys Trp Lys

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Figure 4

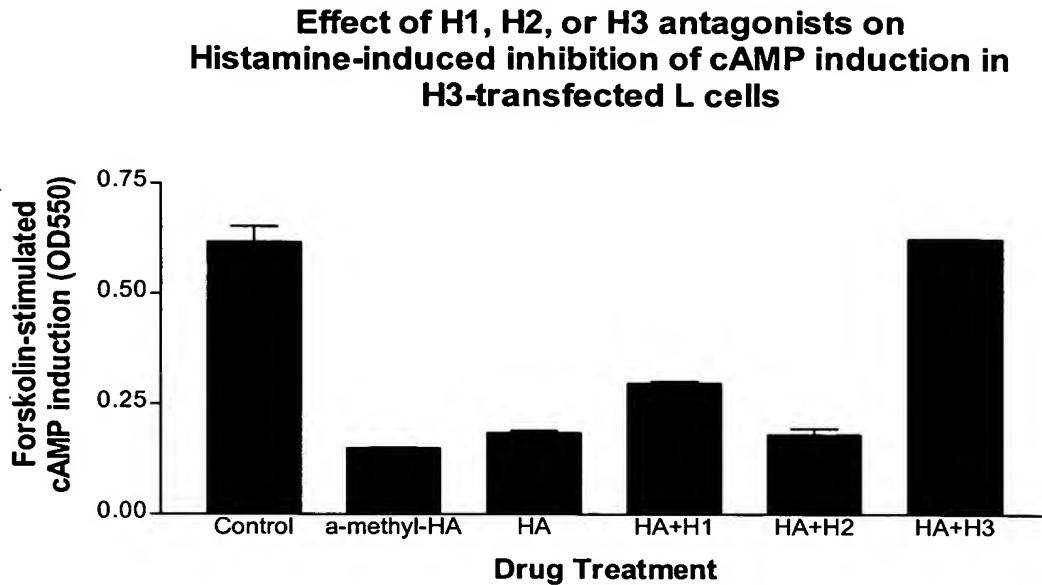
## PCR-based distribution of human histamine H3 receptor



1, Amygdala; 2, Bone Marrow; 3, Brain; 4, Cerebellum; 5, Heart; 6, Hippocampus; 7, Kidney; 8, Liver; 9, Lung; 10, Pancreas; 11, Placenta; 12, Prostate; 13, Skeletal Muscle; 14, Small Intestine; 15, Spleen; 16, Spinal Cord; 17, Stomach; 18, Thalamus; 19, Testis; 20, Thymus; 21, Uterus; 22, Adrenal Gland; 23, Caudate Nucleus; 24, Lymph Node; 25, Mammary Gland; 26, Salivary Gland; 27, Substantia Nigra; 28, Thyroid; 29, Trachea; 30, Spleen; 31, Thalamus; 32, Placenta; 33, Heart; 34, Liver; 35, Lung; 36, Uterus; 37, Pituitary; 38, Spinal cord; 39, Bone Marrow; 40, Hippocampus; 41, Dorsal Root Ganglia; 42, Small Intestine; 43, Negative Control; 44, Negative Control; 45, Negative Control; 46, Negative Control; 47, Negative Control; 48, Negative Control.

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Figure 5



a-methyl-HA = H3 agonist alpha-methyl-histamine (1uM)  
HA = Histamine (1uM)  
H1 antagonist = diphenhydramine (10uM)  
H2 antagonist = ranitidine (10uM)  
H3 antagonist = thioperamide (10uM)

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Figure 6: Sequence of pH3R probe [SEQ.ID.NO.:8]

ACTGGTACGAAACCTCCTTCTGGCTCCTGTGGGCCAACTCGGCTGTCAACC  
CTGTCCTCTACCCTCTGTGCCACCACAGCTTCCGCCGGGCCTTCACCAAGC  
TGCTCTGCCCCCAGAAGCTCAAAATCCAGCCCCACAGCTCCCTGGAGCAC  
TGCTGGAAGTGAGTGGCCCACCAGAGCCTCCCTCAGCCACGCCTCTCTCA  
GCCCAGGTCTCCTGGGCATCTGGCCCTGCTGCCCCCTACCCGGCTCGTTCC  
CCCAGGGGTGAGCCCCGCCGTGTCTGTGGCCCTCTCTTAATGCCACGGCA  
GCCACCCTGCCATGGAGGCGCCTTCCTGGGTTGGCCAGAGGGCCCCTCAC  
TGGCTGGACTGGAGGCTGGGTG

FIGURE 7A

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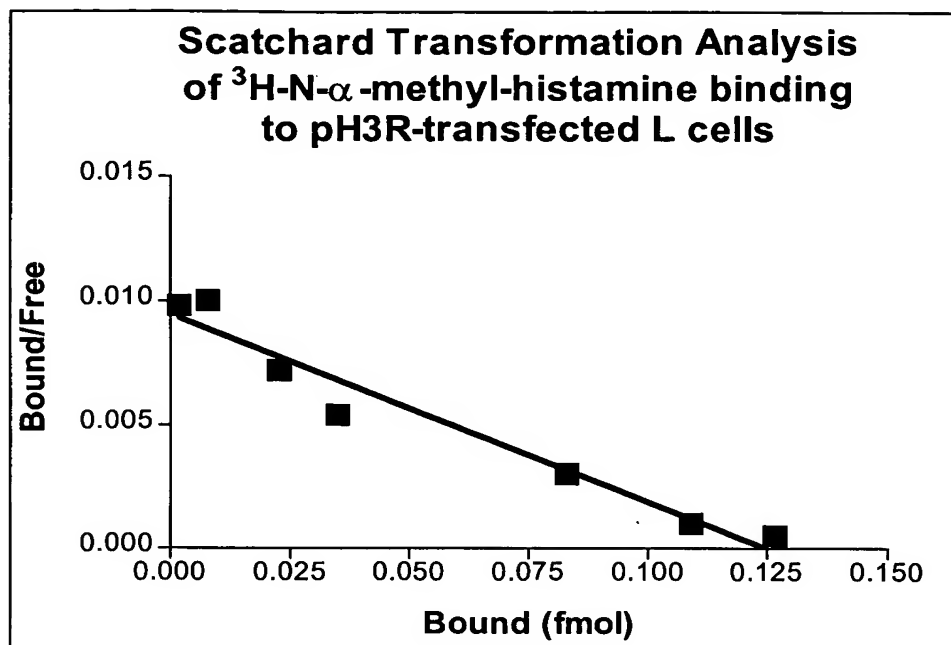




FIGURE 7B

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